

THE HEALING ART

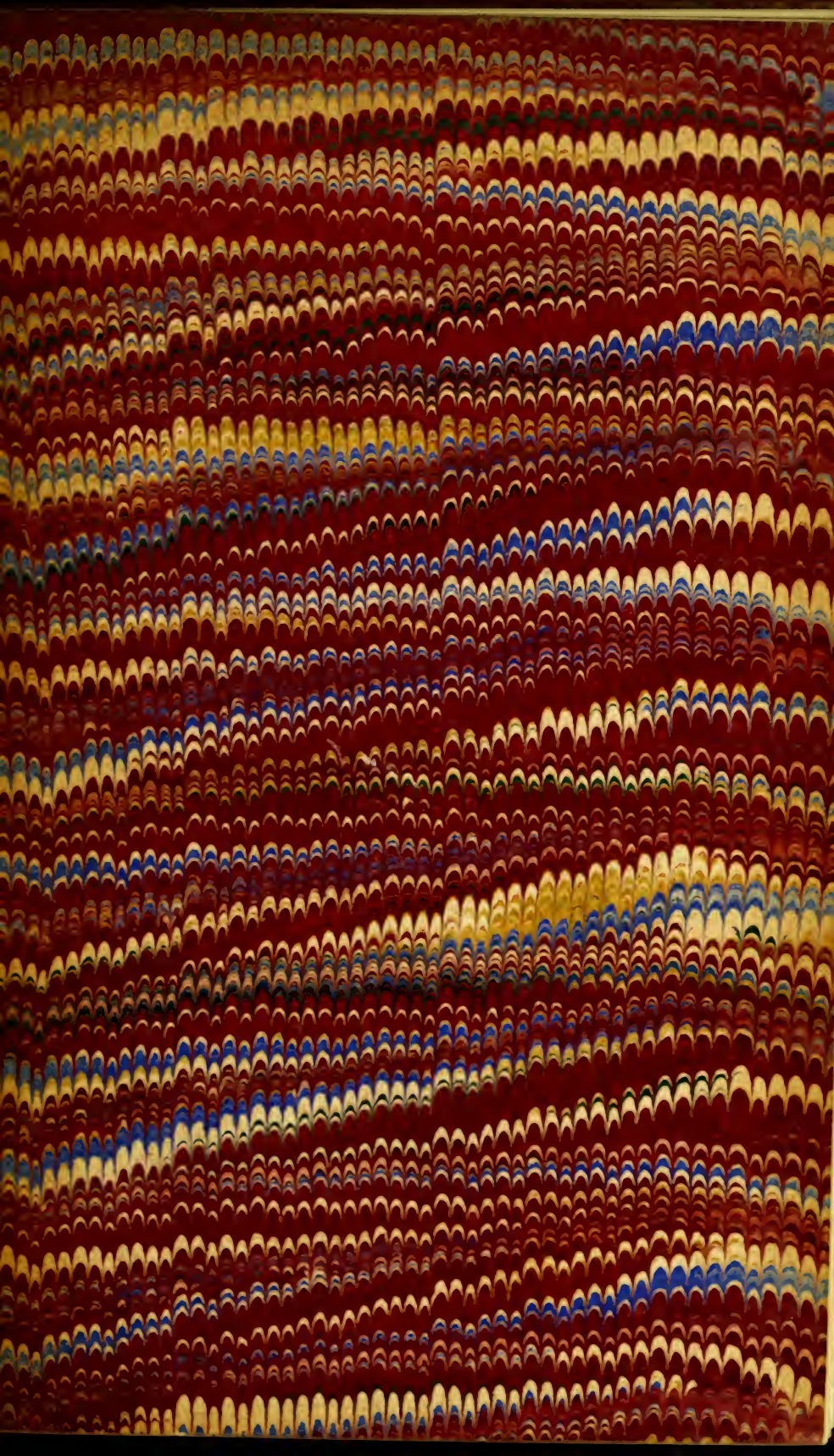
HARVEIAN ORATION

DR. QUAIN

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THE HEALING ART
IN ITS HISTORIC AND PROPHETIC ASPECTS

THE
HARVEIAN ORATION

DELIVERED BEFORE

The Royal College of Physicians

OCT. 19, 1885

BY

RICHARD QUAIN, M.D., F.R.S.

FELLOW OF THE COLLEGE

LONDON
LONGMANS, GREEN, AND CO.
1885

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SPOTTISWOODE AND CO., NEW-STREET SQUARE
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TO

SIR WILLIAM JENNER, BART., K.C.B.

M.D. LOND., D.C.L. OXON., LL.D. CANTAB. ET EDIN., F.R.S.

PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS

PHYSICIAN IN ORDINARY TO HER MAJESTY THE QUEEN, AND TO

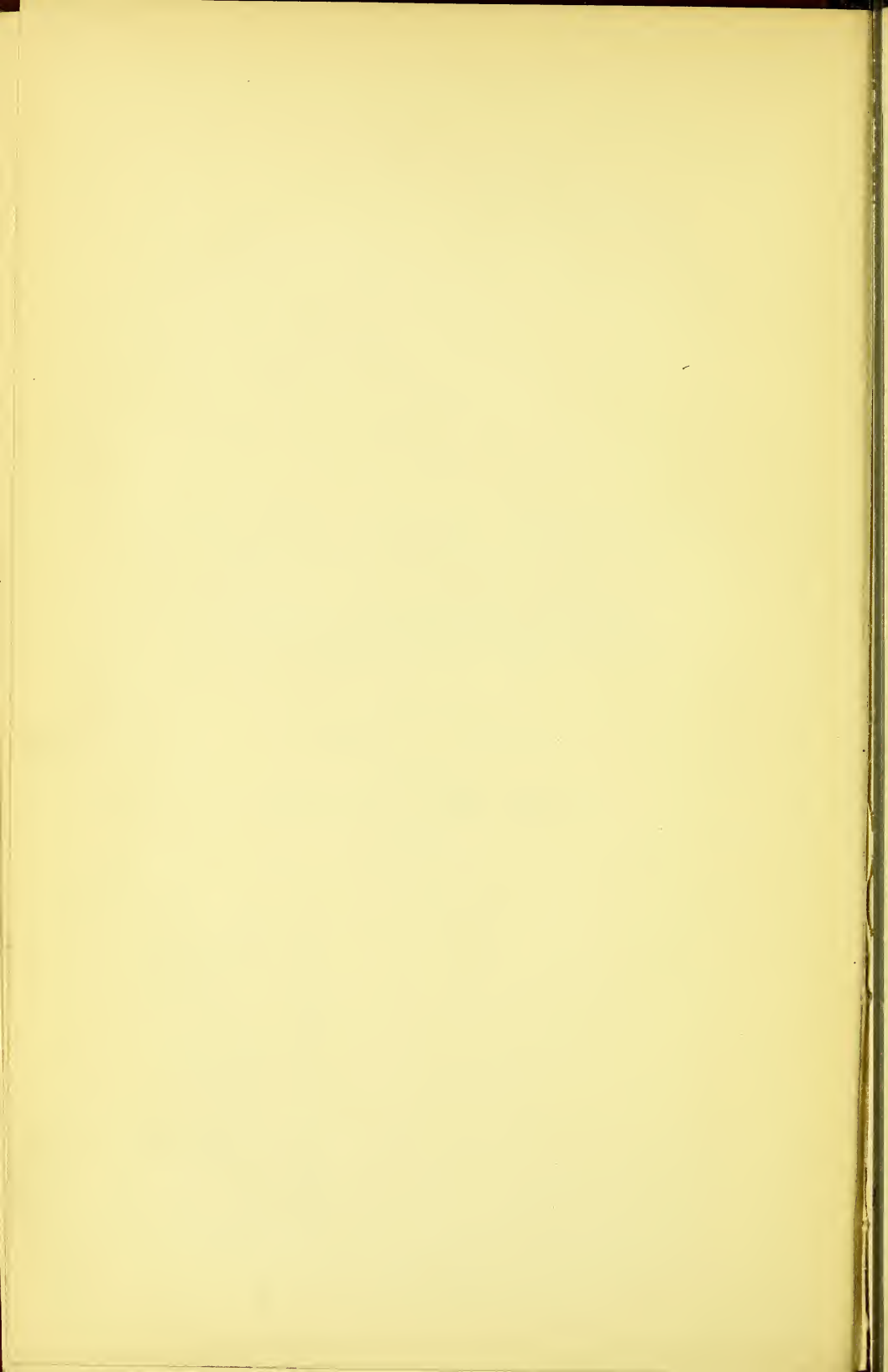
H.R.H. THE PRINCE OF WALES

THIS ORATION

DELIVERED AT HIS DESIRE

IS DEDICATED

WITH HIGH ESTEEM AND KIND REGARD



THE
HARVEIAN ORATION

1885

NOTE.

The references in parentheses are to Notes at the end.

THE
HARVEIAN ORATION
1885.

PRESIDENT AND GENTLEMEN,—It is known to the majority of those, or even to all, whom I have now the honour to address, that our great ancestor Harvey, when he conveyed by indenture his patrimonial estate to our College, made that conveyance subject to certain trusts. One of these trusts, Sir, had reference to the duty of to-day, which, at your request, I am about to endeavour to discharge.

Founda-
tion of the
Harveian
Oration.

Save for a few brief periods of intermission, this duty has been fulfilled annually since the year 1656, when the first Harveian Oration was delivered by Dr. Edward Emily. In the lengthy roll of those who have succeeded this first Harveian Orator we find the names of many Fellows who have been highly distinguished, not only in the annals of our College, but also in the still wider annals of English science and literature. To follow such eminent men in the discussion of subjects on which little that is new can now remain to be said, is an undertaking from which I should naturally have recoiled. But, remembering, Sir, that the request proceeded from you, the distinguished President of our College, once a fellow-student, always a friend, I felt that it was no longer open to me even to hesitate. I felt that I must adopt the words of

the Controller Calonne, who, when asked by Queen Marie Antoinette to undertake a duty which her Majesty considered to be difficult, replied, 'If it be only difficult, it is done : if it be impossible, it shall be done (*se fera*).' In the spirit which suggested this answer I am here ; and I crave the indulgence of my hearers whilst I address myself to my task.

Recent
Harveian
Orations.

For more than twenty years I have listened with attention to successive Harveian Orations, and I have read with care those which have been published during the same period. I have scarcely known which most to admire : the patient research on which these orations have been founded, the philosophic spirit which has breathed through them, or the eloquent and impressive manner in which the conclusions of the authors have been laid before the College. Some of my predecessors have reminded us of Harvey's personal history and surroundings. By others we have been told what was known of the circulation of the blood before his time ; and his method of research and his calm inductive reasoning have been admirably portrayed. By others, again, Harvey's claims to originality in relation to his great discovery have been fully set forth, and have been established with a certainty which can never be disturbed. In one of these brilliant discourses, his observations on Generation found an able and fitting exponent. On another occasion his philosophy, more especially with reference to the doctrine of final causes, was most ably discussed. On another, the bearing of his discovery upon the improved knowledge of therapeutics and the better practice of medicine which have resulted from it was fully described ; and the great philosopher was regarded in the light of a physician as well as in that of a physiologist ; while we seem still to listen to the oration of last year, in which Harvey was represented as having anticipated some of the great discoveries which mark the

present period. Reflecting on these admirable discourses, I felt that it would be impossible for me to retrace such familiar ground, otherwise than at the risk of reminding many of my audience how often they had already heard the same story, related in a more eloquent and a more impressive form.

Meditating, then, on the subject on which I should address you to-day, I remembered that I should have before me the portrait of our great predecessor, who might for a moment be assumed to animate the picture, and to be prepared to listen to what I had to say. And venturing then to ask myself what the founder of this Oration would most desire to hear, it seemed to me that he would say—as might be anticipated from a character so unassuming, so simple, so opposed to ostentation and display—‘Of myself I have heard much: I appreciate the honour, the esteem, and the regard entertained for me by my successors. My work has accomplished all that I could have hoped for or desired. Tell me, then, if you can, something of the profession which I love so well.’

Choice of
a subject.

Anxious to fulfil this unselfish and disinterested wish, and remembering that Harvey had assigned to the Harveian Orator the duty of encouraging his fellows to search out the secrets of nature, it occurred to me that there are two of these secrets which, though not strictly of the kind to which our benefactor’s words were intended to apply, are yet of sufficient interest and importance to justify me in asking your attention to them for a brief time to-day.

To search
out the
secrets of
nature.

The first of these secrets has reference to the past: Why is it that amongst a vast number of persons, alike in ancient and in modern times, medicine has not enjoyed that high estimate of its value, as an art and as a science, to which it is justly entitled? The other problem requires the exercise of the prophetic spirit; since I seek to ascertain whether we have any grounds for anticipating a more

Why is
medicine
depre-
ciated?

What
prospect
for the
future?

satisfactory future for our profession, either in the extension of our knowledge and the security of the foundations on which it rests, or in the consequent appreciation of it by the public.

Why then is it that both in ancient and modern times medicine has been so often regarded with scepticism and want of confidence, and so often treated with satire, and even with contempt?

Difficul-
ties in-
cident to
the heal-
ing art.

In seeking an answer to this question, we cannot be surprised that scepticism as to the powers of the healing art should be rife, both within and without the profession, when we regard the nature of the problems with which we have to deal. The want of faith may be traced to two sources: one intrinsic, and due to the inherent complexity and difficulties of the subject; the other accidental, external, to be found amongst the people at large. In its scientific aspect, medicine possesses this peculiar difficulty and source of uncertainty: that the individuals or units, with which we have to deal, not only differ from each other, but also vary constantly, each one within itself. They are subject to endless influences from within and from without, mental or physical, inherited or acquired. This ceaseless change of circumstances, and the variations consequent upon it, complicate and confuse the problems presented to the scientific physician, increase the labour of his investigations, and render his conclusions so far uncertain that only repeated verification can bring satisfaction to his mind. This source of difficulty is, however, so fully appreciated by those whom I now address, and by all indeed who are interested in the pursuit of science, that I do not propose to dwell upon it here, but rather to turn to what I have called the external causes, which, by affecting the feelings and judgment of the masses, have frequently thrown doubt and discredit upon our professional proceedings.

Evidence of the existence of such doubt, both in the past and in the present, is to be found in the judgments of men of science, not excluding indeed members of our own profession; in the sarcasms of dramatists and satirists, and still more in the daily action and behaviour of many amongst the sick, who, by submitting themselves to the treatment and by accepting the nostrums of charlatans and quacks, in the same spirit in which they would have recourse to the aid of the rational physician, manifest the like esteem in which they hold us all.

Extrinsic causes of discredit on our profession.

I can best address myself to my argument by recalling to your memory some of the oft-quoted sentiments, which, in the half-truths they have expressed, indicate the aspect in which our art has appeared to thoughtful minds.

Expressions of adverse opinion.

Quot Themison ægros autumnno occiderit uno?

asks Juvenal satirically, in reference to the leading practitioner of his day—an expression which has been parodied in our own times by an eminent statesman who asked his friend and physician how many deer he had killed during his autumnal holiday; and, on being told a dozen or more, exclaimed, ‘I congratulate you: you could not have had more success amongst your patients!’ Turning to our profession, we find Celsus asserting that ‘optima medicina est non uti medicinâ.’ Even Hoffmann exclaimed ‘Fuge medicos et medicamenta si vis esse salvus.’ Dr. Gregory half a century ago expressed a remarkable opinion, not more discouraging to his profession as a physician than damaging to his reputation as a prophet, when he said, ‘I think it more than possible that in fifty or a hundred years the business of physician will not be regarded even in England as either a learned or a liberal profession.’ Majendie once stated that ‘the doctor is often superfluous, sometimes mischievous, and occasionally fatal.’

It was not likely we should escape from Shakspeare’s

criticism. 'Trust not the physician,' said Timon to the banditti; 'his antidotes are poisons, and he slays more than you rob.' The opinion entertained of our profession by Molière is too familiar to need repetition; whilst Voltaire tersely described our practice as 'pouring drugs of which we know little into bodies of which we know less.' The late Dr. Arnold wrote not so long ago: 'The philosophy of medicine, I imagine, is almost at zero; our practice is empirical, and seems hardly more than a course of guessing more or less happy.' (1) I might easily extend this list, but there is probably no question more comprehensive and more damaging in its inference than that asked by the late Sir William Hamilton: 'Has the *practice* of medicine made a single step since Hippocrates?' Embodying as it does the essence of adverse criticism, and coming from so high an authority, I nevertheless hope to succeed in showing how utterly unfounded is the suggestion which it embodies.

The tone of low esteem which runs throughout these quotations, often the reflex of current opinion, as well as of that of the individual, compels an attempt on our part to trace the causes to which it may be attributed. These, I think, may be considered as threefold in their character: first, the very course and progress of the science and art of medicine itself from the earliest times to the present day; secondly, the amazing credulity of the mass of mankind; and thirdly, the obstinate and unreasoning incredulity of no inconsiderable minority.

Origin
and course
of the
healing
art.

In looking back on the history of our art we may remember how it was believed to have emerged from the clouds, and how those who practised it were regarded as gods; how subsequently in the hands of Hippocrates the art first assumed the form of a science, and was by him and his immediate successors pursued on a line of careful observation, influenced by, but not entirely subjugated to, the prevailing philosophical speculations on the nature of

things ; how further, impeded at its origin, it became for centuries the prey of rival systems, which, based on *a priori* speculations, and founded on ignorance, were made to fit in with notions engendered by imperfect knowledge. The mere mention of some of these systems is sufficient to suggest the absurdities they propounded, and to justify the taunts and sneers of those who, even could they accept the doctrines set forth, were shaken in their faith when they witnessed rival sects strenuously contending each for its own infallibility. Even Galen strongly condemned the distinctions made by these sects as leading to interminable hypotheses and disputes ; in which each individual supported his own theory to the disparagement of others, and to the great injury of medicine in general.

How, then, can we blame the critics, who were bewildered by the rival factions of dogmatists, empirics, methodists, pneumatists, eclectics, together with the many others in whose hands medicine was 'reduced to a mere department of speculative philosophy, involved in futile disputations and in formulas based on no substantial facts,' and who for six centuries practically monopolised the healing art ? Through the dark ages, during which medicine was largely under Arabic influence, our science consisted for the most part of wordy commentaries on the writings of the ancients ; and the practice, mainly confined to the priesthood, was regulated by the grossest superstition. Those were the days of the astrologer and miracle-worker, of cures by prayers, relics, and royal touch, and of the search for the *elixir vite* ; the time when surgery was in the hands of the barbers.

But it must not be forgotten that during this very period, when all science was at a standstill, and when we can scarcely point to a single observation or discovery, the universities were founded, and in the hands of a few, in small and scattered schools, the light of investigation,

Revival
of science
and learn-
ing.

although dimmed in the prevailing atmosphere of mysticism and hypothesis, had been kindled and was kept alive; notably at Salernum, where an attempt was made to substitute a scientific procedure for the generally prevalent superstitions. (2) At Bologna, Padua, and other schools, anatomy, long discarded, began again to be studied; and thus the revival of learning, and the foundation of the modern scientific method by Bacon, did not find our art absolutely unprepared to receive them. None the less, in Harvey's day the whole work had to be begun anew; the preceding centuries had been almost so much lost time, all that had been handed down from them in the shape of fact was of the most meagre character; dissection had fallen into disuse; without knowledge of structure there could be no physiology, still less any rational pathology and diagnosis; and all that existed of therapeutics was an empirical acquaintance with the efficacy of a certain number of drugs.

Linacre and the foundation of the College of Physicians.

It was not long, however, before improvement reached us. In 1518 the learned Linacre, who had studied at Salernum, returned to found our College by obtaining, through Wolsey's influence with Henry VIII., the charter 'whereby medicine was rescued from the tender mercies of the ecclesiastical profession.'

Progress of medical science subsequent to the foundation of the College.

The history of our profession from this time presents a record of ever-increasing additions to our knowledge acquired by careful observation and experiment. Each division of our complex science received a fresh impetus, not a few becoming differentiated and distinct, and all pursuing for the next two centuries a path of uninterrupted progress. Anatomy, which Vesalius, Fallopius, Fabricius, and others, had built up, reached, in the hands of their successors, a degree of precision only limited by the nature of the subject. Physiology, which can scarcely claim to have been a separate branch before Haller, was pursued with increasing energy by Hunter, Spallanzani, Hewson,

and many others. To Sydenham, Baglivi, and notably Boerhaave, may be ascribed the merit of applying to medicine the method of observation which may be said to have been dormant since the days of Hippocrates. Morbid anatomy, which first took shape in the hands of Bonetus, and was developed by the labours of Morgagni, more than sustained its position by the labours of the Hunters, of our illustrious Fellow, Matthew Baillie, and of many eminent French pathologists. Thus, then, did every branch of our science make progress. Unfortunately, however, incidental to this progress, often inseparable from it, and always detrimental to it, there has continued a tendency to system-making and speculating of the shallowest and most specious character. I am not concerned with the causes which occasioned the delusions hence arising, nor with the justification they might plead for their existence in times when superstition and credulity were rife: it is sufficient for my argument that they existed, and that they contributed, not without reason, to the low esteem in which the efforts of even the foremost of our profession were held. But, whilst the true science which budded forth with Hippocrates was stifled by the systems of his successors, its revival with Harvey and his contemporaries was too powerful to suffer the same fate; henceforth the vain imaginings ran their course side by side with the progress of scientific truth, frequently to its hindrance and injury, but still more frequently to be cast aside and forgotten.

The sources of the various superstitions which degraded our science, and which even still afford some ground for scepticism, are to be sought not only in the inherent tendency of the human mind to accept the marvellous and supernatural, to court deception, and to be pleased rather than otherwise with the result of its quest—

Sources
and
phases
of super-
stition.

Quandoquidem populus decipi vult, decipiatur (3)—

but also in the admitted influence of the imagination over certain functions of the body. The simple and to us fairly intelligible occurrence of the occasional removal of pain by a concentration of the attention elsewhere, or by the substitution for it of some strong emotion, may account for much that, in the past no less than in the present, has become preposterous and absurd from the lengths to which it has been carried. With such material to work upon, it was and continues to be easy for designing charlatans, or mistaken zealots, to develop the most outrageous hypotheses and practices.

Relics,
talismans,
and
amulets.

The revival of learning and of the scientific method, whilst lighting up the path for the few, left the masses untouched; and the superstitions which we somewhat complacently refer to the dark ages remained unaffected by the results that accurate observation was producing. The practice of the healing art was not yet entirely removed from the hands of the priesthood; and the treatment of disease by supplications, by the laying on of hands, by the power of relics, shrines, and holy wells, found still its administrators and its dupes. The superstition of the curative virtues resident in sacred things was easily extended to objects intrinsically less reverend in their nature; and talismans of stone, metal, or wood, engraved with cabalistic signs, or phylacteries—which were texts written on scraps of parchment, and, like amulets, intended to be worn on the person—were easily acquired adjuncts to the necessarily limited supply of saintly relics. And yet who shall say that a time which has produced clairvoyance, metallic tractors, and the ‘mind cure,’ is free to cast reproach at the deeds of these dark ages?

Astrology
and al-
chemy.

The whole so-called cabalistic sciences of astrology and alchemy, developed as they were by men of ability like Paracelsus, came to acquire a strength which they would scarcely have possessed if left alone to the ignorance of the people. John French, in a work on alchemy published

in 1650, and supposed to have been among the last on the subject, thus enunciates the pretensions of his craft: 'If men did but *believe* what this art could effect, and what variety of wonder there is in it, they would no longer be bound up to Galen or Aristotle, but would subscribe to be faithful to the principles of Hermes and Paracelsus.'

Perhaps among the most curious of all the superstitions that have debased our profession is that of the royal gift of healing. Commencing with Edward the Confessor, the touch continued to be practised by our sovereigns, though with many exceptions, until the days of the first George. Nor was it limited to this country. France claims Clovis as the originator, and the ceremony was certainly performed by many of his successors. 'In no reign,' says Dr. Pettigrew, 'did the practice prevail to such an extent as in that of Charles II., and it is not a little remarkable that more people died of scrofula, according to the bills of mortality, during this period than in any other.' It may be further observed that surgeons did not disdain to recommend this treatment to their patients. It was at the instigation of Sir John Floyer, a physician of eminence, that Samuel Johnson was twice 'touched' by Queen Anne; and, as Boswell remarked, evidently without success. This power has not been held to be limited to royalty: 'Even to-day,' wrote the late Dr. Meryon, 'in Scotland the seventh male child in a family has the gift of curing the king's evil by touch.'

The royal touch.

The existence of these and a thousand other superstitions, the record of which excites alike our amusement and amazement, could not have been sustained for a moment except for the credulity of those on whom they were practised. (4) 'The kind of credulity,' said Sir James Simpson, 'which the public thus show daily in relation to medicine, they show in relation to no other practical art or science. Indeed, if a similar species of charlatanry

Credulity.

were attempted in relation to most other arts and sciences, the delusion would be at once detected, and the imposture duly denounced; whilst, in medicine, the delusion would, on the other hand, probably make the propounder's fame and fortune, and in the course of years be forgotten.'

Truly we may say with Crabbe —

' This love of life, which in our nature rules,
To vile imposture makes us dupes and fools.'

Aspect of
the Col-
lege in
relation
to super-
stitious
practices.

So widespread and importunate were these errors that we find even our own College gravely testing men in their knowledge of astrology (1593-96), deputing members of our body to inspect bewitched people, and, summoning those who assumed the power of cure by touch, requiring them to exercise their skill in the presence of the College.

It is not to be forgotten that Harvey himself, following on the lines of Galen and Aristotle, adopted a view as to the nature of life which is a phase of the almost universal conception held in one form or another up to our own day. It appeared as the 'animism' of Hoffmann and Stahl, who bequeathed to us as a consequence what is known as 'expectant medicine.' Another development of the same idea is the theory of a vital principle, the 'vitalism' of Haller and Barthez, from which even now we cannot be said to be entirely free.

Modern
systems.
Cullen,
Brown,
Broussais.
Homœo-
pathy.

Scarcely more than a century ago the medical world was divided by the contending schools of Cullen and Brown: the latter with his sthenic and asthenic diseases and tonic and depressant treatment; the former, in hot hostility, advocating the hypothesis that disease was the result of opposite conditions of spasm and debility. Soon after this appeared in France the doctrine of Broussais, who held that gastro-enteritis is the basis of pathology, and local depletion the proper remedy for fever. There is yet another

system which cannot be passed over without reference,—viz., Homœopathy, which teaches that disease consists of symptoms which are to be treated by remedial agents producing like symptoms in the healthy, the potency of the medicaments increasing in proportion to their dilution.

The influence which these myths have had upon the healing art has been most varied. But certainly they have played a large part in occasioning the low regard in which practitioners of medicine have too often been held by the public. I cannot do better perhaps than quote the words of Dr. Percival, who said: ‘A list of all the follies which at different periods have been established as articles of faith in medicine would form the severest satire on the healing art.’

The influence of superstition and system in discrediting the healing art.

But despite all these untoward influences, the progress, as I have reminded you, was sound so far as it went when we consider the disadvantages under which the workers pursued their investigations. Nevertheless, they came to a line, beyond which they made but slight advance—a line indistinct, perhaps, and not equally sharp and well-defined in every subject, but withal a line across which, without the intervention of some great change, they could never have passed. We may apply to this period the words that Bacon used in reference to science in general in a previous age: ‘Learning,’ he wrote, ‘is neither prosperous nor greatly advanced, and a way must be opened to the human understanding entirely distinct from that known to our predecessors, and different aids procured that the mind may exercise her power over the nature of things.’

Limits reached by observers before the present age.

Looking back as I can to the manner in which the component parts of the medical curriculum were pursued when I began my student life, and contrasting this manner with what goes on around me now, I cannot doubt, in the words of Bacon, that a new way has been opened—an *instauratio magna*. When I tell some of my younger listeners that only forty-six years ago my teacher and friend, the

late Sir Robert Carswell, the first pathologist of his day, whose drawings of morbid appearances remain a monument of accuracy and skill, never used a microscope in his course of lectures, and that his only reference to microscopic appearances was to mention that pus consists of a clear fluid and globules—some idea may be formed of the change which has taken place.

Direction
of the
change
that has
occurred.

And now during a few moments let me indicate to you the direction in which this change has been effected, seeking meanwhile if we can find therein any data which may help us to reply to my second question,—What are our hopes for the future? Clearly the direction was towards a better comprehension of the nature of life, and inferentially of disease; together with a more accurate knowledge of the body both in its structure and its functions. The halt to which observers had come was largely compelled by limited methods of experiment; and it is particularly to improvement in the methods and instruments of research that much of our advance is to be attributed, as it is also from such improvement that still more is to be expected.

Anatomy
and his-
tology.

First, in respect to gross anatomy—the science of structure—little could be added to the knowledge which has been continuously accumulated since the days I have previously referred to; but it was Bichat who in 1801, by his treatise on the minute anatomy of the tissues, opened up a new branch of inquiry which but for the microscope could not have existed, and for which the microscope has done what the reflecting telescope did for astronomy. It would not seem, however, that the work of himself and his followers had borne much practical fruit even in my early days. I have told you what was then the relation of the microscope to the study of morbid anatomy. Its position in respect to healthy histology was scarcely better: and it is only since then that the impetus for investigation has arisen, and the application of this impetus to

physiology. Prominent among the researches into structure was the recognition by Schwann and Schleiden of the so-called cell in all living tissues; a doctrine which has been subsequently extended to embrace the existence of protoplasmic forms generally. I need not more than mention the very considerable position, both as regards extent and accuracy, which histology has assumed within the past few years.

So long as the study of the phenomena of the living body was hampered by the dominant notion of a special vital principle, not amenable to the laws which governed inert matter, and which was to be investigated in ways other than those which were producing such grand results in the domain of chemistry and physics, the progress of physiology was likely to be slow and accidental. The turning point in the subject was undoubtedly its being brought into harmony with the principles which govern other experimental sciences, and being pursued along the same path. So far as the change can be attributed to an individual, it is to Mayer that this credit must be given, for his work in 1845 on the relation of organic motion to the exchange of material. For some time from that date, no function of the body escaped investigation by the method of direct experiment of which a mistaken humanity and senseless clamour have since deprived us; always aided by the experiments which nature offers to the physiologist in the operations of disease, complicated though these experiments be by conditions which render them more difficult of explanation.

Physiology.

From the chemical side physiology has received much assistance. Our knowledge of the composition of the blood and its derived secretions, though still leaving a great deal to be desired, has done something towards unravelling the complex chemistry of the tissues. The chemistry of digestion and respiration, which a century, nay fifty years ago, was a jargon compounded of the residues of the Hippocratic

notion of the four elements, and of alchemy interspersed with streaks of the new chemistry which was then arising, is now pursued on lines in harmony with those of everyday laboratory investigation. To mention but one practical result thence obtained, I would refer to the artificial digestive juices and prepared foods which have become most valuable remedies. On the physical side are the study of the phenomena of muscular contractility, and the expression of the work done in such terms that it may be calculated with the same accuracy as the fuel value of a pound of coals; the study of the laws of osmosis which underlie all the physiology of absorption and nutrition: the conditions affecting and determining gaseous interchange which explain the process of respiration: the nature of elasticity and the important share it takes in the physics of the circulation: turn which way we will, we see now in our physiological laboratories—themselves the creation of the last twenty years—experimenter and instrument maker competing in a demand and supply of the apparatus by which such work as I have indicated has been rendered possible.

Patho
logy.

To speak of the advance of physiology is to imply a progress in pathology, since the latter is but the application of the former under the conditions of disease. Mutually aiding each other as they have done, it was not until physiology rested on a secure foundation that pathology could claim the title of rational. Although healthy structure came to be known, and the dependence upon it of function to be recognised, it was long before the same idea prevailed in respect to disease. It is the especial glory of Virchow's work on cellular pathology that he applied consistently to morbid structure and action the same principles which had already made considerable advance in regard to healthy.

Proceeding on such lines, lines that we feel assured are

tending towards great truths, we find that in every branch into which pathology is artificially separated improvement is taking place. The causation of disease—etiology—it is now known, must be sought in disturbances of our surroundings, or in defective inherited tendencies. How immeasurable is the distance which separates the mental attitude of the inquirer of to-day, engaged in tracing the causation of an epidemic disease, from the mystics who bewildered themselves with the notions of malignant spirits, of evil humours, or even recently of ‘epidemic waves.’

Etiology.

To illustrate especially the advance we have made in our knowledge of etiology, I would select but a single point, that is, the practice of arresting the diffusion of disease by limiting the spread of contagion.

Illustration of preventive medicine.

This practice was illustrated on a gigantic scale by the *Rinderpest*, or Cattle Plague, which appeared in this country in 1865. Towards the end of June in that year a few bullocks, imported from Revel, bringing with them the infection of cattle plague, were sold in the Metropolitan Cattle Market. From this single centre the disease spread step by step throughout the country until it had established 25,000 foci of infection within the year. Then a remedy was applied: all traffic of cattle was stopped; all infected beasts were killed, and all healthy bovine animals with which they had come in contact. The pestilence was stayed, but not until 300,000 animals had died or been killed, with a loss to the country, at a low estimate, of three millions sterling, and an indirect loss to the same amount. All this might have been spared if it had been possible for the authorities, by a better knowledge of the nature of the disease, and of its remedy, to extinguish it at its single primary focus by the sacrifice of a small number of animals at the cost of a few pounds. (5)

Cattle Plague.

The system of preventive treatment which thus proved so successful in the case of these lower animals has, as far as

may be, been employed in certain infectious diseases, such as Cholera, Scarlet Fever, Typhoid Fever, and Diphtheria. To isolate the sick and such persons as have been in relation with them, until the very end of the period of infection, to thoroughly disinfect the secretions and other products from the patient at the earliest possible moment; to properly dispose of the dead; to cut off from the public all sources of contaminated supply, whether of water, milk, or other kind of food—these are a few of the principal measures which the experience of a comparatively recent period has taught us to practise in contagious diseases with results so satisfactory as to encourage us in their further extension. We have, indeed, rational grounds for the belief that if the spread of infection were restricted by law, this class of diseases would soon be effectually extinguished. The result of such measures in reference to cholera poison are particularly striking. Many of us remember the invasions of this country by cholera, and its fatal progress, in the years 1831, 1847, and 1854. When sanitary measures were yet in their infancy, the epidemic of 1866, though grave in certain districts—Swansea, for example—was rendered harmless in other places. From that period to the present there has taken place no serious outbreak of cholera in this country, although there have been infectious arrivals on our shores on several occasions, as in 1873 and 1884 at Southampton, Swansea, Liverpool, and in the Thames. This satisfactory result is entirely due to the efficient arrangements made by the proper authorities to limit the spread of the disease. In this matter they acted under, and carried out, the judicious counsel given by that wise administrator Mr. Simon, when acting as medical adviser to the Privy Council and the Local Government Board. I need scarcely add that this teaching has not been lost upon Mr. Simon's former colleagues and able successors.

Cholera.

Nor would it be satisfactory for me to pass over the subject of vaccination, the procedure by which that dire disease small-pox can be prevented or greatly modified. 'One fact is worth a shipload of arguments,' and therefore it will be sufficient to say that Ireland, stated to be the best-vaccinated country in the world, is practically at this moment free from small-pox; that since 1874 not a single case of death from variola has occurred in the German army, which dwells in the midst of a population protected by compulsory re-vaccination; whilst on the other hand we see at this moment in the city of Montreal, unprotected by vaccination, a frightful mortality. It is painful to contemplate such a consequence of ignorance or neglect; but, as Mr. Simon said in his letter on vaccination to the President of the General Board of Health, 'it goes with the credulity which characterises the present age to be incredulous of proved truth. Alike in rejecting what is known, and in believing what is preposterous, the rights of private foolishness assert themselves. It is but the same impotence of judgment which shrinks from embracing what is real, and lavishes itself upon clouds of fiction.'

I feel, Sir, that it would be almost impertinent in me to address such an audience as I see before me on the details of the improvements in our knowledge of pathology and the allied subjects, the diagnosis and treatment of disease. But when I recall the views quoted by me in an earlier portion of this address, as to the absence of progress in our science and the hopelessness of its future—when I recall that these opinions have been held not only by men of science but by many others, I feel it to be one of the duties of the present occasion to indicate our real position in definite language, the echo of which may possibly be heard beyond these walls. It will, at least, reach the ears of some who will hear with satisfaction that the reproaches raised against us have no longer any

Small-pox.

Progress of pathology.

foundation, and that the progress of our Art and of our Science has been greater during the last half-century than during all the preceding centuries. Nay, more : that recent progress gives promise of still more rapid progress in the future.

It is not necessary to recount an elaborate list of discoveries in support of this assertion. One may truly say that there is no organ, no structure, no function of the body in health or disease which has not received the stamp of improved knowledge during the period referred to.

The work
of the
Patho-
logical
Society.

In our knowledge of the structural changes which occur in disease, accuracy is now replacing with great strides the previous uncertainty and vagueness ; and I feel it is due in this connection to refer to the good work of the Pathological Society of London, whose forty volumes of Transactions are a brilliant monument of labour and research, and a bright exemplar to future years. It is but justice to say, in memory of one long since dead, that the society was established in 1843 by the intelligent zeal of a member of our College, the late Dr. Edward Bentley, a name which is remembered and honoured by those amongst us his friends and colleagues who still survive, although unheard of or forgotten by many who yet fully appreciate the value of the Society which he was the chief means of establishing. (6)

Morbid
anatomy.

I need but remind you how extensive has become our knowledge within the past few years of the facts of structure revealed by the microscope in connection with new growths, with regard not only to their distinctive characteristics, but also those which connect apparently diverse forms and indicate their relation to the tissues in which they occur. The structural lesions comprised in the term 'degeneration' are now clearly recognised and defined, and, without pretending to a complete knowledge of these morbid conditions, that which we do know about them possesses a character

of certainty and truth, dependent on the essentially correct method by which the facts have been determined.

Concurrently with the growth and diffusion of a scientific knowledge of the causation of disease, and of its structural manifestations, there has arisen a better understanding of morbid processes. The condition of inflammation, which has been recognised from the earliest times, and has probably given rise to more discussion than any other subject in pathology, is now regarded in a manner which, whilst it admittedly leaves much to be discovered, is at least in harmony with our knowledge of the functions of normal nutrition. The pathology of Fever also, though not yet complete, may be said to have been scientifically studied only during the last fifty years. The systematic use of the clinical thermometer, the application of chemical testing to the secretions, and the improvements in the methods of bedside investigation generally, have revealed to us a vast number of facts which were unknown to observers at the beginning of the century.

Morbid
processes.

Another factor of the greatest importance, both in relation to normal function and to disease, is the direct influence exercised by the nervous system on the tissue metabolism. We have no clear knowledge how this influence is exercised, but the existence of some control is certain; and it is curious to notice how older notions of neural pathology recur in the more accurately defined conceptions of to-day. The comprehension of the part played by the blood in disease is also an advance which has been eminently fruitful in results, and which differs widely from the doctrine that at one time attributed every malady to some vitiated condition of the circulating fluid.

But nothing will bring the conviction of recent progress more completely home to our minds than a brief retrospect of parasitic pathology during the last forty or fifty years. How great a step, though it looked but small at the

Parasitic
pathology.

time, was the discovery of the first vegetable parasite in the skin and hairs, by Gruby (7) and others, about the year 1840! The notion of parasiticism as a cause of disease has clung to pathology in all ages; and the analogy between fermentation and the acute specific processes has long possessed the mind of every thoughtful physician. But we ought clearly to bear in mind, in justice to modern medicine, that the *Torula cerevisiae* itself was not discovered until 1835, by Schwann and others, and that it is only within the last few years that the presence and activity of an organism have been definitely connected with a specific febrile disease—I refer to the discovery of the spirillum of Relapsing Fever by Obermeier in 1873. A new era in pathology, whatever may be its result, has arisen within the last few years with the rise of bacteriology. A host of highly trained and eager observers in Germany, France, England, and other countries, following the teachings of Koch, are now engaged in the study of the acute infective diseases; and by ever-improving methods striving to contribute something fresh to the great but still obscure and unsettled subject of the relation of these organisms to pathology. Fallacious no doubt as were some of the earlier conclusions on this subject, there seems to be no question that the study of Bacteria and Bacilli has greatly widened our views of the nature of disease, and that it promises to lead to practical results of the first importance as regards its prevention or modification at the hands of Pasteur and others.

Experi-
mental
pathology.

The value of all this progress has been greatly extended by the aid of that new line of scientific inquiry which has already done so much, and which promises still more—I mean *Experimental Pathology*. Of this subject Hunter laid the foundations a hundred years ago; but it was reserved for our own time to see the extension of his method on a large scale in this country to the subjects of fever and infection—to the study of artificially produced disease,

which in the hands of Sanderson, Klein, Greenfield, and others, has been so materially promoted by the establishment of the Brown Institution.

Whilst Pathology has been thus steadily progressing side by side with Physiology, Diagnosis, or Symptomatology, the science and art of Clinical Observation has proportionately profited by our improved knowledge of these subjects. The leading feature of modern diagnosis is the full adoption of methods and instruments of scientific exactness, which, through the aid they give to the senses, permit the diseased organs, as it were, to reveal their own condition. The stethoscope, introduced by Laennec in 1819, was used by but a few at the commencement of the second quarter of this century; and I well remember how an eminent hospital physician, whom I met in consultation little more than thirty years ago, characterised it as a dangerous instrument. The ophthalmoscope, invaluable in the detection of diseases of the eye, reveals to us also many morbid conditions of the brain and spinal cord, and even more general disease, such as is represented by albuminuria. The laryngoscope is of equal value in reference to the diagnosis of diseases of the throat and chest. Instruments are now in constant use which accurately measure and graphically record the condition and movements of the several organs—the sphygmograph and cardiograph; whilst even the number and value of the blood-globules are revealed to us by the hæmacytometer and hæmoglobinometer. The general adoption of the clinical thermometer and of the electric battery has marked an era in medical diagnosis. The microscope has become indispensable to the medical practitioner; and even the spectroscope has some clinical uses. The chemistry of the secretions is now universally investigated, the routine examination of the urine having revealed to us a large number of interesting facts. On some of these

Diagnosis.

Instruments
available
for.

I might dwell, did time allow me ; but I can only refer in a word to the evidence which the examination of the urine furnishes of the remarkable relation which exists in a great number of instances, not only between the liver and glycosuria, but between the liver and azoturia and albuminuria. The subject is one of deep and general interest, fully demanding investigation. (8)

Special
progress
in dia-
gnosis.

No advance has been more important than that of the differentiation of the several forms of fever—an advance to which you, Sir, have yourself so largely contributed. The increase of our knowledge of the symptomatology of diseases of the nervous system has been equally marked. In all directions we may note greater definiteness of knowledge and of diagnostic power. Many forms of disease, previously unknown, are now recognisable by the exercise of ordinary carefulness.

In a word, it may be said that those only who lived in what may be called the pre-accurate period of medicine, and who are still engaged in practice, can appreciate the vast improvements which have been introduced in the course of a professional lifetime in the art of the observation of disease, or can perceive how some of these are suggestive of still greater results in the future.

In speaking of the progress of medicine I would of course be understood to include those departments which have been somewhat arbitrarily separated from it—surgery and gynæcology. But as special branches of the healing art their advancement has been so considerable as to demand for the full exposition of each some one more competent for the duty than I can have any claim to be.

Thera-
peutics.

I now come to a most important part of my present inquiry: the practical application to *treatment* of the great advances which I have just recorded in the medical sciences. We must not forget, in our enthusiasm as scientific observers, that our very *raison d'être* as physicians is the prevention and cure of disease. With these two

branches of practical medicine we are equally concerned : our College has ever been as distinguished for its influence in the one as in the other. As early as 1650 the Annals tell us that the College presented to the Lords of the Council a statement of ' Annoyances,' by way of preservation from the plague, very similar, indeed, to what the College might suggest at the present day. (9)

With reference to the question how far our methods of treatment of disease have been improved, I fear I must expect to meet with a certain amount of scepticism. But this scepticism is not reasonable. During the last fifty years medicinal treatment has advanced in two directions—by the introduction of many new drugs of great importance, and by the conversion into rational remedies of a large number of substances which were previously employed in a purely empirical manner. These results have been greatly facilitated by the discovery of the alkaloids, the first of which was morphine in 1817. With these and other active principles, the practical physician is able to determine with accuracy the value of drugs which possess definite physiological actions, and to apply them in a simple, uncomplicated form, especially by subcutaneous injections. Nay, more : the pharmacologist is no longer satisfied with the direct supply from nature ; he is now busily engaged preparing synthetically a series of entirely new agents.

Two directions of its advance.

There are those who, seeing no progress in therapeutics, must have forgotten that some of the most effective means for diminishing human pain and suffering—the whole class of anaesthetics, commencing with the application of ether in America in 1847—have been discovered within the last forty years. In this connection also I would mention the revival on scientific principles of the administration of nitrous oxide gas as an anaesthetic. Of still more recent introduction are chloral hydrate and cocaine ; whilst nitrite of amyl, nitrite of sodium, and nitro-glycerine are recognised

Introduction of anaesthetics.

Special drugs.

as invaluable agents in the reduction of arterial tension. The proper use of the bromides is comparatively new ; indeed, bromide of potassium was omitted from the London Pharmacopœia of 1851 as being a useless drug ! At the present time we find the dominant idea in pathology, the doctrine of germs, pervading and influencing therapeutics also. Antiseptics, with which the name of Lister is inseparably connected, and antipyretics, are being employed in treatment to an extent of which the last generation could not have dreamed, and with results of the greatest practical advantage. The introduction of the salicyl compounds in the treatment of rheumatism is still a comparatively recent event. Some of the new antipyretic drugs almost rival in power quinine and salicine themselves. Surely all this is improvement of the best kind. Let us pause for a moment, and contemplate the condition and prospect of a surgical patient only fifty years ago. No anæsthetic to induce insensibility to pain ; no antiseptics to promote healing of the wound ; no chloral to procure sleep ; no antipyretic in general use to control fever. With such instances before us, how unjust to say, with some, that medicinal therapeutics remain stationary !

Future
prospects
of thera-
peutics.

Turning now to the prospect for the future, I may be allowed to add a few words on the means by which further therapeutical advance can best be secured.

There are two lines of investigation which must be followed, namely, clinical observation and pharmacological research. We must not approach these inquiries with the question, now too often heard, 'Have you any faith in physic?' but with minds free from prejudice and incredulity, and hopeful of results not inferior to those which have characterised recent investigations. It would be unbecoming in me to attempt to indicate in this assembly the manner in which clinical observation of the action of remedies should be conducted. Still it seems to me that there are one

or two points which greatly threaten in practice to interfere with the rational administration of remedies, and which I would desire to condemn, inasmuch as they tend seriously to retard our future progress. There has grown up a habit of prescribing ready-made physic, of using compounds which contain a variety of drugs, each having different properties—a practice in which there is a mental proclivity to regard the disease as suitable to the physic in hand rather than to take the trouble to find a remedy that is suitable to the disease. This system is unpractical, unscientific, and least calculated to promote a knowledge of the legitimate use of medicinal agents. In fact the art of writing a rational prescription is in danger of becoming lost.

Retarding
circum-
stances.

Closely connected with the practice here condemned is that which hastily repudiates remedies on the ground of their failing to fulfil the intentions with which they have been prescribed. A chapter might be written on this subject, which, however, I shall summarise by saying that when these incidents cross my path—as they do that of all of us—I am disposed to fear that my diagnosis and not the drug has been at fault. (10)

Secondly, we must regard with jealousy what is called the statistical method of inquiry—that method in which an aggregate of units is made to represent a single substantial fact. If these units differ among themselves, and if the recorders of these single facts are not quite certain of the uniformity of the facts with which they are dealing, the inference must be misleading. It was Morgagni who said that ‘facts must be weighed, not counted;’ and there is nothing more certain than that, if this sage advice be not followed, the conclusions will be unsound. This is the danger to which what has been called ‘collective investigation’ is liable. So long as the inquiry is confined to simple facts which the observers are not likely to mistake, it is probable that valuable results may be obtained. But so soon as the

problems to be inquired into are such as demand accurate research, close reasoning and clear judgment for their solution, the capacity of the observers comes into play as an important qualifying consideration in estimating the value of the results that are formulated. And when the method is applied to obscure points difficult of verification—such, for example, as the hereditariness or the infectiousness of phthisis—the conclusions may easily be rendered mischievous and unworthy of confidence. (11)

By experi-
mental
pharma-
cology.

Having thus spoken briefly of clinical observation, the next method by which therapeutical science can be advanced is that of experimental pharmacology—the scientific investigation of the action of medicinal agents on healthy animals. These two modes of inquiry should be carried on simultaneously, each suggesting, and at the same time testing, the methods of research pursued by the other.

By the aid of pharmacology the circumstances of an experiment are greatly simplified; we can vary the conditions under which it is conducted, and thus trace the numerous influences which either assist or counteract the action of drugs, and which lead to variable and apparently conflicting results in man. By this means also we can determine which part of a complex mechanism, such as the nervous system, is affected by particular agents—whether, for example, the nervous centres, the nervous tracts, or the peripheral endings. And again, it is only by experiments on animals that we can safely test the action and strength of new drugs, and the phenomena and morbid results produced by poisonous doses; whilst from such experiments we receive many fresh suggestions for the introduction or manufacture of allied products. In England, for the moment, we are compelled almost entirely to accept such results at second hand, legislation interfering with this method of inquiry. We must revert to

the liberty of action possessed by France, Germany, and other countries, or must send our inquirers to pursue science in places where they are free to do so without incurring legal penalties.

The results of investigations such as these, too often buried in elaborate monographs, may never reach the physician in a form to bring home their application to his mind and in his practice. How they might be made more popular and more available in our daily procedure is a question which should receive attention within these walls. Our College might do much for the encouragement of research in therapeutics, and we might require from the candidates for our Licence a better knowledge of the subject. Fortunately we have means which might be made available for promoting the first of these objects in the funds derived from the Croonian Trust, recently increased in value. It is a grateful duty to remember the name of the founder, Lady Sadlier—a duty strictly in accord with the desire of Harvey that on these occasions our benefactors should be duly commemorated. Lady Sadlier in 1700 founded the Croonian Trust, a trust which established a lectureship remunerated by a yearly payment of 10*l*. The property bequeathed to us has increased in value, and now affords the College an available income from this source of over 200*l*. a year. Harvey also desired that the Harveian Orator should exhort the Fellows and Members of the College to search out and study the secrets of Nature by way of experiment. How could the Croonian fund, thus so much increased in value, be appropriated with more justice or with greater advantage than in promoting the scientific study of the treatment of disease—the very object for which our College exists?

Position
of the
College
in respect
to thera-
peutic
research.

Secondly, seeing the large number of individuals who, through receiving the Licence of this College, annually join the profession, it is quite within our power so to regulate the course of education and the examinations, as to bring the

subject of therapeutics into that position in the curriculum in which it would receive the most practical and profitable consideration.

And in mentioning the control thus obtained by the College over the medical profession, it is my pleasing duty to refer to those great benefactors who, in the year 1859, re-established the class of Licentiates, with a result which has enabled us, by the increase of our numbers, to assume that independent position to which the College is justly entitled, but which nevertheless it had not previously enjoyed. (12)

Evidence
of the
improve-
ment
claimed.

But, Sir, whilst I have indicated to you, in the faint outline which alone time permits, the progress which our science and our art have made in every direction, my argument would be incomplete unless I produced some evidence that the improvements on which I have insisted have been productive of substantial results. We must not only claim to have replaced blind groping along the pathways of knowledge by a method based on reason and observation, in which we recognise the nature of our ignorance as well as the extent of our acquirements; but, as exponents of a practical science, we are bound to show that our progress has been real. This, I think, can be done, even though it be briefly. The first object of medicine, it has been well said, is to prevent disease, and the next to cure or relieve it; and the nearer we approach to these ends the more successful may we claim to be. The prevalence of disease is displayed in the returns of mortality and of sickness; and a reference to the pages of those masterpieces of vital statistics, the Registrar-General's Annual Reports, will furnish us with ample data for estimating the increasing value of preventive and remedial medicine in improving health and lengthening life, or the incidental national gain in labour and wealth which proceeds therefrom.

During the forty-three years intervening between 1838, when registration began, and 1881, when the last census was taken, the population of England and Wales increased from upwards of fifteen millions to nearly twenty-six millions, and all evidences of improved health should be considered in reference to this total increase of population, as well as to such other influencing factors as the distribution of the people in town and country, in respect to sex and to age-periods.

Diminished
mortality.

Summarising the results of these statistics, we note that there has been a steady decline in the mean death-rate per 1,000 living, from 23·3 in 1838 to 19·6 in 1884. The decrease is still more strikingly shown if we compare the mean rate, which was 22·3 for the 37 years preceding 1875, when the Public Health Act became law, with that for the succeeding eight years, when it fell to 20·3.

Taking the mean death-rate for the 45 years from 1838 to 1883, as 22·0 per 1,000 living, the improvement within each of the past four years has been considerable: in 1881 it was 18·9; in 1882, 19·6; in 1883, 19·5; and in 1884, 19·6. This means that if the death-rate of the previous decade, which was 21·4, had been maintained, the deaths in England and Wales during the four years in question would have been nearly 213,000 more than they actually were.

The decline in the rate of mortality has occurred at all ages except from 45 to 75 in males, and from 55 to 65 in females; the greatest improvement occurring in both sexes at ages below five years. Mr. Noel Humphreys, in an able paper on this subject, concludes that the effect of this decline in the death-rate is to raise the mean duration of life among males to the extent of two years, and among females to nearly three and a half years; and further, that by far the larger proportion of the increased duration of life in England and Wales is lived at useful ages, and not in the dependent conditions of childhood and old age. More recently, Mr.

Makuna points out that the diminution of mortality means also the survival to maturity of most of the saved infants and children, and useful lives to some of them. And Dr. Longstaff considers that the tendency appears to be for useful working life to be increased, but for old age to be slowly shortened.

In special diseases.

It is impossible for me here to consider in detail how the diminished mortality is distributed among different diseases, or to assign to the two factors of that improvement, better sanitation and better methods of treatment, their respective shares in producing the result. But it is distinctly in those diseases which are caused by insanitary conditions, and which are so far preventible, that the greatest improvement has taken place. Following the main grouping of sickness adopted by the Registrar-General, there has been a decline from the mean rate for the decade 1871-80, during the years since 1880, in zymotic, parasitic, constitutional, developmental, and local disease. Only in 'dietetic' (Farr) diseases has there been a slight increase. As regards special diseases, the diminished mortality has been most marked in the group of fevers (typhus, typhoid, and simple continued), and in phthisis.

I cannot refrain from dwelling for a few moments on the special applications of these general results to well-defined classes; and for this purpose I will select the army, though the same truths could be established, I believe, in other classes also.

In the army.

The general death-rate of the army at home for the decade 1870-79 was 56 per cent. below that before 1854, and the rate for 1880 was 62 per cent. below it. And, again, whilst in 1880 the death-rate per 1,000 living was 17·6, in 1881 it was 14; in 1882, 11·8; and in 1883 it fell to 9·8.

Professor McLean, speaking lately at Netley, said, in respect to the European part of the Indian Army, that the

mortality in 1859-60 was about 79 per 1,000, whilst in 1882 the death-rate in all India, from all causes, was only 13·07 per 1,000. He further stated that he had known, in the 'pre-sanitary age,' dysentery kill 1 in 5 of those attacked; and in a regiment with an average strength of 1,098 there had been as many as 2,497 admissions into hospitals in a year, with 104 deaths, chiefly from dysentery and hepatic abscess; whilst in 1883, in the same part of India, out of 13,000 men, only 3 out of 500 cases of dysentery proved fatal.

To speak of such a change and not to mention the name of Edmund Parkes, would be unjust alike to his memory, and to the fair claims of the profession which is itself honoured in calling him a member.

We may say of him as Idomeneus, speaking of the wounded Machaon, said to Nestor,

Ἰητρὸς γὰρ ἀνὴρ πολλῶν ἀντάξιός ἄλλων—

or, as Pope has rendered the sentence,

A wise physician, skilled our wounds to heal,
Is more than armies to the public weal.

The statistics from which conclusions may be drawn as to the amount of sickness that prevails are necessarily imperfect, and any statement as to the decline of the sick-rate is difficult to prove. But the late Dr. William Farr considered that for every death there are two cases of severe sickness, and that the rates of mortality and sickness 'within certain limits rise and fall together.' And since it is considered that for every death there are twenty-five cases of illness mild and severe, a diminished death-rate means a lessened amount of illness. The full significance of these facts in their bearing on our national wealth and productive power, as well as on the individual well-being and capability for work, can scarcely be over-estimated; but these subjects lately received so complete

Diminished
sickness.

and admirable an exposition at the hands of Sir James Paget, that I need not further allude to them here.

When we thus regard the rapid and marked progress which our art and science have made during little more than half a century, I feel that we are fully justified in believing that progress in the future will be even more remarkable, and that with materials for investigation in abundance, with willing and able workers, and with our College aiding and guiding the work, there can be neither fear nor doubt for the continued advance of the Healing Art.

In an earlier portion of this address I mentioned those who have spoken in disparaging terms of our future. Let me now, on the other hand, refer to an opinion of greater interest and greater force, expressed recently by one of our most eminent statesmen, who said to me, and repeated the observation on more than one occasion, 'Your profession has a great future before it, and I believe that in one generation, or at most two, it will be far in advance of the other learned professions.' This opinion is fully in accord with our recent progress. There *is* before us a great future, and it is my faith in this future which has led me to speak to you in this sanguine spirit. I have done so in full reliance on the value of the results which will be accomplished by those who are engaged in our great work, on the spirit which moves them, and on the means which they must have at their disposal for investigation. I have spoken to you as a prophet; but let me add in conclusion one word of hope and of prayer: that at no distant period the Fellow of this College who has the privilege of occupying the position which I fill to-day may be able to speak to you no longer as a prophet, but as an historian to record the great work which had been accomplished, and the share which our College had taken in its achievement.

NOTES.

NOTE 1, page 8.

See Dr. John William Ogle's *Harveian Oration*, 1881, p. 175.

NOTE 2, page 10.

It is curious to observe how history repeats itself in the coincidence shown between the ordinances of the School of Salerno, in the thirteenth century, in reference to the course of preliminary and professional education, and the regulations recently discussed and formulated by the General Medical Council in this the nineteenth century, on the same subject.—Thus we read that Frederick the Second, about the year 1230, 'laid down at the School of Salerno a distinct course of preliminary and professional education, of examination, the form of admission, and laws for the subsequent control—as well as protection—of physicians practising in the Kingdom of Naples.' By these laws, 'no one was allowed to enter on the study of medicine unless he had given up three years at least to "logic;" after which five consecutive years were to be devoted to medicine, and at the same time surgery which forms a part of medicine; and, finally, one year to the practice of medicine under an experienced physician. Having conformed to this curriculum, and being provided with certificates as to age, birth, &c., he was permitted to present himself for examination at the Medical College of Salerno.'—*The Unity of Medicine*, p. 19. (London: Baillière, 1858.)

NOTE 3, page 11.

Cardinal Caraffa, afterwards made Pope Paul IV. (he lived from 1476 to 1559), wrote of the devout Parisians of his day, in hexameter verse: as quoted in the text—

Quandoquidem populus decipi vult, decipiatur.

NOTE 4, page 13.

One of the most remarkable instances on record of credulity, not only of non-professional but of professional persons, is to be found in the 'Narrative of an "Extraordinary Delivery of Rabbits" perform'd by Mr. John Howard, surgeon, at Guilford,' and published in 1727 by Mr. St. André, Surgeon and Anatomist to His Majesty. This narrative, which is to be found as a Tract in the College Library, is nothing less than a circumstantial account of the birth of sixteen rabbits by a poor woman, Mary Toft, of Godlyman, in Surrey, who was in labour for some days, under the care of Mr. Howard, surgeon, of Guildford; of Mr. André, who was present at the request of the Prince of Wales; and, finally, of Mr. Ahlers, Surgeon to His Majesty's German Household, who 'went by his Majesty's order to inquire into the truth of the fact and to attend to her till all was over.' The King further interested himself so much in the case as to be present at an anatomical demonstration of several of the animals brought to London for the purpose by Mr. St. André. The whole of the details of this extraordinary case will be found in the above-mentioned pamphlet, published by John Clarke, at the *Bible*, under the Royal Exchange, MDCCXXVII.

NOTE 5, page 19.

The Royal Commission appointed (September 25, 1865) to inquire into the origin and nature of the Cattle Plague, to which allusion is made in the text, consisted of the following members:—Lord Spencer, *Chairman*; Lord Cranbourne, now Marquess of Salisbury; Mr. Lowe, now Viscount Sherbrooke; Dr., now Sir Lyon Playfair; Dr. Quain, F.R.C.P.; Dr. Parkes, F.R.C.P.; Dr. Bence Jones, F.R.C.P.; Mr. Thomas Wormald, President of the College of Surgeons; Mr. Robert Ceely; Mr. Charles Spooner, Principal of the Veterinary College; Mr. J. Robinson M'Clean, President of the Society of Engineers; and Mr. Clare Sewell Read. Mr. (subsequently the Right Hon.) Mountague Bernard acted as Secretary.

The inquiry was conducted under the direction of the above Commission by the following gentlemen:—Dr. Burdon Sanderson, F.R.C.P., who investigated the nature, propagation, progress, and symptoms of the disease; Dr. Murchison, F.R.C.P., the general pathology of the disease, and its relation to human diseases; Dr. Marcet, F.R.C.P., the chemical pathology of the disease; Dr. Bristowe, F.R.C.P., the morbid anatomy of the disease; Dr. Beale, F.R.C.P., microscopical researches on the disease; Mr. G. Varnell, M.R.C.V.S., and Mr. W. Pritchard, M.R.C.V.S., treatment; and Dr. Angus Smith and Mr. Crookes, disinfection.

These gentlemen carried out a most exhaustive inquiry into all

the circumstances connected with the origin, nature, and spread of the Cattle Plague. The many valuable original drawings made in connection with the investigations and which illustrate the Report were presented to the College by the Commission.

NOTE 6, page 22.

The foundation of this Society was greatly promoted by the exertions of Dr. C. J. B. Williams, who was its first President, and whose work on *The Principles of Medicine*, the first edition of which appeared in 1843, greatly contributed to the advancement of this department of our science.

NOTE 7, page 24.

My much lamented relative, the late Dr. Jones Quain, who was at the time resident in Paris, made me personally acquainted with the investigations of M. Gruby. It was by his wise counsel that I brought with me from Paris a microscope made by Brunner under M. Gruby's direction. This was one of the earliest microscopes applied in London to pathological investigation, and it still holds its ground as a useful instrument.

NOTE 8, page 26.

The intimate relation which exists between Physiology and Pathology is shown in a very remarkable manner when we observe the connection between the functions of the liver and certain morbid processes. The formation of sugar in diabetes has been so fully discussed that I need only refer to it; but the relation of urea formation to the liver is a matter deserving of further study. My attention was first called to this subject in 1879 by the case of a gentleman whom I saw in consultation with Mr. Savory. This patient was about thirty years of age. He complained of extreme lassitude and depression, being unwilling or unable to exert himself. His liver was large and his abdomen distended. His diet was chiefly vegetable, from choice. There seemed to be nothing to explain the feelings from which he suffered; but on inquiring into the condition of the secretion of the kidneys, it was found that he passed generally from 6 to 9 pints of water in twenty-four hours, the specific gravity of which averaged 1030°. It contained no sugar, but did contain a large excess of urea, which crystallised out as a nitrate when equal volumes of the urine and nitric acid were allowed to stand in a tube surrounded by cold water. This gentleman was freely purged by calomel and colocynth pills; his health gradually improved; and he is now, October 1885, quite well, habitually taking the same pills from time to time. From this case and from many others less marked but equally distinct in character as regards this urea-formation and the symptoms which accompany it, I was led to conclude that

there is some peculiar relation between the liver and this formation of uræa. Recent physiological researches indicate with sufficient clearness that uræa, which was formerly supposed to depend altogether on the waste of nitrogenous tissues, is formed in a large measure in the liver itself. I would repeat that this subject is one of great interest for pathological investigation.

I find a confirmation of the view here expressed in an essay by H. Martin, *Rapports de l'Urée avec le Foie*, Paris, 1877. The author's words are : ' Enfin il est possible d'utiliser, dans une certaine mesure, les variations de ce principe (l'urée) dans l'urine, pour le diagnostic des maladies du foie ' (p. 26).

NOTE 9, page 27.

Copy of ' Annoyances ' presented by the College to the Lords of the Council, by way of preservation from the plague. These are : ' Increase of the buildings in and about the City ; inmates by whom the houses are so pestered that they become unwholesome ; neglect of cleansing of common sewers and town ditches, and permitting standing ponds in divers inns ; uncleanness of streets ; the leastalls so near the city, especially on the north side ; the slaughter-houses in the city ; burying of infected people in the churches and churchyards of the city ; that churches are overlaid with burials ; the carrying up of funnels to the tops of houses from privies, and from vaults of the dead ; the selling of musty corn in the public markets, or bakers baking unwholesome corn ; butchers killing unsound cattle ; tainted fish.'—See *Annals of the College*, 1630.

NOTE 10, page 29.

There is another circumstance which the limit of time prevented my mentioning in the text, one which, in my opinion, greatly tends to retard therapeutic progress. This is the prejudice, often without foundation, against the use of certain remedies. Of this we may take mercury as an instance. There can be no doubt that the marked prejudice against this drug is due to its abuse, more especially in the treatment of specific disease, of which many lamentable examples are preserved in our museums. I would desire to say that no organ in the body has a more important influence on organic life than the liver (we find this organ in one form or other in every class of animal), and that no drug has more influence on the liver, both in a physiological and in a pathological respect, than mercury. Of this, those who have faith in the value of the drug have daily evidence by the aid which it gives them in the treatment of disease of the liver and of the organs with which it is associated. No doubt there are individuals who, from some unknown cause, are depressed by the use of mercury ; but there are others who feel after its use all the exhilaration produced by a stimulant. I may mention, as a remarkable instance, the fact that grey powder in small doses was the only remedial agent which at one time I could induce

the late Mr. Carlyle to take. He felt its beneficial effects in relieving the attacks of irritability and some times of depression, to which he was liable; and he spoke with gratitude of Paracelsus, who, he said, was the first to apply *Quicksilver* internally in the treatment of disease.

The use of mercury has been most specially interdicted in certain maladies—for instance, albuminuria. This prejudice seems to have arisen from the teaching of Dr. Wells (*Trans. of a Society for the Improvement of Medical Knowledge, &c.*, vol. iii. London, 1812) and Dr. Blackall (*Blackall on Dropsies*, 3rd edit., London, 1818), the latter of whom so nearly anticipated Bright's discovery when he described as early as 1818, in his work on Dropsies, the connection of albuminuria and dropsy with some forms of disease of the kidneys, and who dwelt on the injurious influence which he believed mercury had on the disease. No one can read the writings of Dr. Wells and Dr. Blackall without being convinced that they founded their objections on what may be said to be the injudicious use of the drug.

This is not the place to discuss the use of mercury generally, nor the treatment of Bright's disease; but I have met with so many cases in which the use of this drug did no harm in albuminuria, and so many in which it did good, that I will instance two which seem characteristic.

One of these cases was that of a gentleman who for some twenty-five years or more had albuminuria, with a secretion of rather low specific gravity and occasionally showing transparent casts. This patient happening to suffer from symptoms of specific disease, was so anxious to be cured of it that he took, against the earnest desire of myself and Mr. Henry Lee, who saw the case with me, some twenty-five grains of blue pill daily, besides using mercurial inunction. The administration of mercury was continued for several days, but in reduced doses, and, strange to relate, without producing any ill effect on his kidney trouble. This is a result which Mr. Lee tells me he has seen in similar cases; in one case, in which calomel baths were administered in the treatment of a diseased rib, albumen, which was present, entirely disappeared and the patient got well. Thus we may feel certain that the absolute prohibition of mercury in these cases when otherwise indicated is a mistake.

The second case which may be recorded as showing the toleration and the remarkably beneficial influence of mercury in albuminuria is, in brief outline, as follows:—

A lady, aged nineteen, bathed in the sea whilst menstruating, in May, 1883, with the result that the catamenial flow was arrested, her body gradually became œdematous, and the urine albuminous. When first seen by me on the 24th of November of the same year, the patient was pallid and breathless on exertion, her legs were very œdematous, the urine was 1026°, and became almost solid when boiled. She was ordered salines and digitalis, with Friedrichshall (and later Rubinat) water as a purgative. A month later the dropsy had increased so much that the patient could hardly open her eyes. Hot-air baths were now ordered. Six months later—in May 1884—the patient was simply

holding her own; the urine still weighed 1032°, contained an excess of urea and much albumin. She was ordered three grains of Plummer's pill three times a week. On the 14th of June she was already better: the dropsy was less; the skin perspiring; 2½ pints of urine were passed per diem, of specific gravity 1026°. There was less albumin, especially in the early morning specimen. She was ordered to take iron, still continuing the mercurial. Two months of this treatment reduced the dropsy still further; the urine measured 4½ pints daily, the specific gravity was lower, and the amount of albumin less. By the beginning of December 1884, the dropsy had disappeared, the patient felt well, the breathing was free, the pulse was quick but not tense. The specific gravity of the water was now 1016°, and the albumin still less. The Plummer's pill had been regularly taken up to this date, and the hot-air bath three times a week. On the 27th of May, 1885, fully twelve months from the time when she began the use of the mercury, the patient represented herself as 'quite well;' there was no dropsy; menstruation had been regular for three months; the urine was, however, still albuminous. The pill was now reduced to twice a week. When last seen, on the 11th of August 1885, the patient was as well as before, and was passing urine containing fully 6 grammes of urea per 100 cubic centimetres. The pill was now ordered once a week only.

It will be understood that my object in referring to this subject here is to show that the absolute prejudice against the use of mercury in cases of which albuminuria is a prominent symptom, is not well founded. It is now well recognised that the presence of albumin in the urine is the result of the operation of very many different causes. It is quite possible that under some of these conditions mercury may be harmful, but it is equally certain that in others it has a beneficial operation. This is not the place to discuss what these conditions are: they are objects which claim careful study and investigation.

NOTE 11, page 30.

A case which came under my observation in January 1884 strikingly illustrates the difficulties incident to such inquiry. A lady over fifty years of age was seen by me in consultation with a very intelligent practitioner, who regarded the case as an instance of acute phthisis acquired by infection from one of her grown-up children, who in addition to three others had died of phthisis without having any predisposition to the disease. That our patient had pulmonary consumption was clear enough, and equally so that the children had succumbed to the same malady, but the grounds for the supposed infective nature of its origin were completely dissipated by a further inquiry, which showed that she had suffered from all the symptoms of phthisis many years before, and had been regarded by the late Dr. Noble of Manchester as a remarkable case of recovery from the disease, and

further that, so far from having acquired her illness from her son, she herself had been in all probability the means of transmitting it to her children.

I have seen this patient very recently in consultation with Dr. Macintosh of the Brompton Road, who for some months has attended her.

NOTE 12, page 32.

The history of this subject is so little known, and yet is of such remarkable interest, that I have thought it well here to introduce as a note an extract from the Annals of the College, showing how the class of Licentiates came to be re-established. First, however, I may refer to an extract from Caius' original MS. of the History of the College (vol. i. p. 2), which in reference to the class then called Licentiates reads thus:—

‘Eodem etiam parlamento concessum est, ut ex hoc collegio medici non solum partem medicinæ, pharmaceuticam et dieteticam, sed etiam chirurgicam, si velint exerceant.’

We further find that in 1524 a fresh statute was enacted, forbidding *Licentiates* to make or sell medicine (see Meryon's *History of Medicine*, vol. i. p. 271); and such a restriction continued to exist until the present class of Licentiates was established. The following extract describes the proceedings of the College.

The Committee, engaged in 1859 (after the passing of the Medical Act, 1858) on the translation of the Bye-Laws of the College into English, and on adding to and altering the same, proposed the following as a new Bye-Law:—‘Licentiates of this College shall not compound or dispense medicines except for patients under their own care.’

1859. *July 15.* It was proposed by Dr. Barker, seconded, and agreed to, that the consideration of the Bye-Laws relating to Licentiates be postponed till October.

July 26. The Requisition calling for a special meeting to consider the proposed Bye-Laws in reference to the new order of Licentiates, was handed to the President [Dr. Mayo], signed by Drs. Latham, Barlow, Quain, Roe, Brown, Bennett, Gull, Baly.

July 29. Dr. Copland gave notice of his intention to move a resolution on the subject.

August 8. At an extraordinary meeting of the College, summoned at the request of eight Fellows, to ‘consider the proposed Bye-Laws in reference to the new order of Licentiates,’—

Dr. Copland moved as an amendment, and Dr. Tweedie seconded:

‘That it is inexpedient to establish under the Corporation seal a new order of Practitioners, entitled Licentiates, entering at an early age, and who are to be empowered to practise pharmacy; such an important organic change being so contrary to the long existing Laws of the College, and so likely to prove prejudicial to the position of the

pure physician throughout England, more especially as it yet remains undeveloped in what way and to what extent the new Medical Act will affect the College of Physicians and the profession in general.'

Dr. Quain moved, and Dr. Todd seconded, a second amendment :

'1. That any person who shall have satisfied the College touching the sufficiency of his acquirements in general science and literature, and given proof under examination of his proficiency in the science and practice of Medicine and Midwifery, and who shall have complied with such other regulations as are or shall be required by the Bye-Laws of the Corporation, may receive a licence to practise physic.

'2. That no person so licensed be empowered to vend, compound, or dispense any medicine, except for patients under his own medical care.

'3. That every candidate furnish proof of being twenty-one years of age.

'4. That these resolutions be submitted to the Medical Council for its approval.'

This second amendment was put, and carried by 28 to 8.

As the result of this revival of the class of Licentiates, there are now over 2,000 Licentiates on the College Roll, and the number of Candidates for the Primary Examination, which is held quarterly, at the present Examination (October 1885) exceeds 400.



